

# Animals in Disasters

## MODULE B UNIT 5

### Organizing the Response to a Disaster

#### Overview

This unit covers issues relating to the response to a disaster. Aspects of emergency management will be described as will some of the unique issues that surround animals in disasters. For mutual support and collaboration in disasters it is very important to understand the Incident Command System (ICS), as this is where communications and coordination in a disaster succeed or fail. Only groups that are organized to be part of the Integrated Emergency Management System (IEMS) will be able to operate within the ICS.

#### Objectives

Upon completion of this unit, you should be able to:

- Define the Incident Command System (ICS) and list its functions
- Describe how an Emergency Operations Center (EOC) is activated and used
- Identify ways to communicate with the media and the public
- Describe veterinary issues in disasters and ways in which to handle them
- Describe public health issues, in terms of animals in disasters
- Identify environmental issues of concern in terms of animals in disasters

#### The Incident Command System

The ICS is the foundation for an effective all-risk emergency planning and response capability to any critical incident (defined to follow). Functions may be further expanded to meet the needs of each situation regardless of the magnitude of the disaster. The following describes each of these aspects in greater detail.

Critical Incident	Any natural or man-made event, civil disturbance, or any other occurrence of unusual or severe nature that threatens to cause or causes the loss of life or injury to citizens and/or severe damage to property. Critical incidents require extraordinary measures to protect lives, meet human needs, and achieve recovery.
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## History and laws relating to ICS

The ICS has been adopted by a variety of emergency service organizations, such as law enforcement, emergency management services, and public works. This unit provides an overview of ICS. The ICS dates to the early 1970s, when a series of major wildfires in Southern California prompted municipal, county, State, and Federal fire authorities to form an organization known as “Fire Fighting Resources of California Organized for Potential Emergencies” (FIREScope).

FIREScope addressed problems that recurred in many fires during that time. These problems included:

- Nonstandard terminology among responding agencies;
- Lack of capability to expand and contract as required to meet the demands of an incident;
- Nonstandard and non-integrated communications;
- Unmanageable span of control;
- Lack of designated incident facilities; and
- Lack of a comprehensive resource management strategy.

Although originally developed for wildfire settings, the system ultimately evolved into an all-hazard system. This made it appropriate for all types of fire and non-fire emergencies. Due to the need for and increased interest in a model emergency incident management system, the National Curriculum Advisory Committee of the Incident Command Systems/Emergency Operations Management Systems recommended adoption of ICS as an all-risk, all-agency system. ICS was then adopted by the National Fire Academy as its model system. In 1987 the ICS received additional endorsement by the International Association of Chiefs of Police.

Now there is a legal basis for adopting ICS, which is due to Federal laws that require its use for specific types of incidents. These include:

- ▶ The Superfund Amendments and Reauthorization Act (SARA) of 1986. This act established Federal regulations for handling hazardous materials. SARA directed the Occupational Safety and Health Administration (OSHA) to establish rules for operations at hazardous materials incidents.
- ▶ OSHA rule 1910.120, effective March 6, 1990, requires all organizations that handle hazardous materials to use ICS. The regulation states:  

“The Incident Command System shall be established by those employers for the incidents that will be under their control and shall interface with other organizations or agencies who may respond to such an incident.”
- ▶ The Environmental Protection Agency (EPA) requires States to use ICS at hazardous materials incidents.

How does the ICS function?

Many incidents require a response from a number of different agencies. For example, a livestock trailer accident may require medical services, law enforcement, public works (if utilities are damaged), veterinarians and animal control personnel. All of these groups must work together in a coordinated fashion. To enable this coordination, disaster preparedness plans that provide effective care for animals and their owners should be integrated into the ICS. Through the ICS all of these resources are coordinated efficiently and functionally.

The ICS lends consistency to the way team members and agencies function in an emergency. It eliminates the need to reinvent the wheel for each new emergency. To be truly effective, the ICS uses an integrated approach to ensure its applicability to all incidents.

Based on what was reported in the FIRESCOPE study, there are eight primary components of a good emergency management system:

- ▶ Common terminology,
- ▶ Modular organization,
- ▶ Integrated communications,
- ▶ A unified command structure,
- ▶ Consolidated action plans,

- Manageable span of control,
- Designated incident facilities, and
- Comprehensive resource management.

The ICS employs basic business management techniques, including:

- Planning,
- Organizing,
- Directing,
- Coordinating,
- Delegating,
- Communicating, and
- Evaluating.

Business managers perform many tasks as part of their routine management functions and are a good resource in developing, maintaining and implementing the ICS.

**Economy of resources** For a critical incident to be handled effectively, economy of resources must be considered. Economy of resources requires:

- Establishing goals,
- Setting priorities, and
- Assigning resources.

**Common terminology** The need for common terminology in any emergency management system is essential, especially with communications among diverse agencies. In ICS, major organizational functions and units are predesignated, and the system's terminology is standard and consistent. For example, when multiple incidents occur within the same jurisdiction or on the same radio frequency, each incident is named individually. If an incident occurs at 16th and Rivermont, it could be called the "Rivermont Street Command." An incident that occurs at 16th and Bellingham could be called the "Bellingham Street Command." Common names are established and used for all personnel and equipment, and for all facilities in and around the incident area. This helps to prevent confusion.

## Organizational structure

The ICS organizational structure develops from the first in unit at any incident. Five functional areas that are implemented as the need develops at an incident site are:

- ▶ Command,
- ▶ Operations,
- ▶ Logistics,
- ▶ Planning, and
- ▶ Finance and administration.

The number of people fulfilling these functions will grow according to the growth of the incident.

## Command

The ICS is built, in part, on the concept of unity of command. Unified command is shared responsibility for overall incident management. Because many incidents involve multijurisdictional or multi-agency resources, the operating procedures need to be defined before the incident. In the event of conflicting priorities or when resources are scarce, there must be a clear line of authority for decision-making.

The command function is always established first in a disaster. Specific ICS organizational structure for any incident is based on the incident's management needs. Frequently, a modular organization system is employed, because it can expand or contract, depending on the magnitude of the incident or operational necessity.

The command function within ICS may be conducted in two general ways:

- ▶ A single command may be applied when there is no overlap of jurisdictional boundaries or when a single incident commander (IC) is designated by the agency with overall responsibility for managing the incident.
- ▶ A unified command is applied when the incident is within one jurisdiction and more than one agency shares management responsibilities. The concept of unified command means that all involved agencies contribute to the command process by:
  - Determining overall goals and objectives.
  - Jointly planning for tactical activities.

- Conducting integrated tactical operations.
- Maximizing the use of all assigned resources.

Unified command also is used when an incident is multijurisdictional in nature or when more than one individual, designated by his or her jurisdiction or agency, shares overall management responsibility.

The selection of participants to work effectively within a unified command structure depends on the location and type of incident. An individual or group's previous training or experience may be an additional factor. A unified command structure could consist of one key official from each jurisdiction or representatives of several functional departments within a single jurisdiction. Implementing action plans under a unified command is the responsibility of the operations section chief. This person usually represents the agency with the greatest jurisdictional involvement. Under the unified command concept, all agencies involved contribute to the command process.

The command post (CP) is the location from which direction, control, coordination, and resource management are exerted over the incident. There is only *one* CP. Ideally, the CP houses the:

- Incident commander,
- Planning function,
- Communications center, and
- All agency representatives.

In some instances the CP may not be large enough to accommodate all of these individuals. In these cases, separate areas must be designated. When performed effectively, comprehensive resource management should accomplish the following.

- Maximize resource use;
- Consolidate control of large numbers of single resources;
- Reduce the communications load;
- Provide accountability; and
- Eliminate self-assignment. Unsupervised action without authorization has resulted in confusion, and undermines effective management.



## Operations

The operations function manages tactical operations. This involves coordinated communications, safety supervision and information.

All communications are conveyed via the incident command post, because a lack of an integrated communications system can rapidly become the biggest problem at a disaster site. Integrated communications involves managing communications at incidents through the use of a common communications plan. For clarity of communication, standard operating procedures (SOPs) should be established using common terminology and clear text for use in the command center. It is important that messages are received and acknowledged properly. Recommendations for the care of animals should only be given by persons familiar with both emergency management operations and animal care. These persons should be identified before a disaster occurs.

To facilitate safe operations within the ICS a safety officer is appointed by the IC. The safety officer ensures that safety procedures and safe practices are observed, and identifies unsafe or hazardous conditions that may exist or develop. The safety officer:

- Has the highest authority;
- Formulates measures to protect the safety of personnel; and
- Takes *immediate* action to stop or prevent unsafe acts.

Persons familiar with common behaviors of animals and associated dangers should advise the safety expert on handling animal safety issues. Expert advice will be needed to prevent livestock contamination.

The ICS also coordinates and releases all official information. To ensure that government officials, the media and other persons that contact the ICS get correct, up-to-date and appropriate information, a public information officer (PIO) is designated within the ICS. The incident commander often appoints a PIO and often a liaison officer, because one person cannot manage both the incident and the media.

- The PIO works with the media and provides them with accurate and consistent information.
- The liaison officer acts as a diplomat and a point of contact for assisting and coordinating agencies, providing lines of authority, responsibility, and communication.



- ▶ The public information and liaison officers should consult with experts on animal care before issuing any recommendations on how to deal with them.

## Logistics

The logistics function provides the facilities, services, and materials to carry out the plan. Every incident functions on the basis of a consolidated action plan. The action (logistics) plan determines how the logistics will be utilized. Action plans can be either verbal or in writing and are prepared by the planning section.

The following areas should be addressed in action plans:

- ▶ Strategic goals,
- ▶ Tactical objectives, and
- ▶ Support activities needed during the entire operational period.

Written action plans are advisable when resources from multiple agencies are used or when several jurisdictions are involved and personnel and equipment are changed. In prolonged incidents, it may be necessary to develop action plans covering specific periods.

Another important component of logistics that produces an effective emergency management system is a manageable span of control.

Span of Control	Defined as the number of subordinates one supervisor can manage effectively. Guidelines for the desirable span of control recommend from three to seven persons. The optimum number of subordinates is five per supervisor.
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Logistics also coordinates the care of volunteers, such as how they will be fed.

## Planning

The planning section of the ICS collects, evaluates, disseminates, and uses information about the incident and the status of resources to plan a course of action. Details of planning are available in the FEMA publication, *Guide for All-Hazard Emergency Operations Planning* (State and Local (SLG) 101).

## Finance and administration

The finance and administration function of the ICS manages all costs and financial considerations of the incident.

## Using the Emergency Operations Center

The Emergency Operations Center (EOC) is the central location where operations are controlled in case of a disaster.

The EOC is activated during the response phase of emergency management. How it is made operational and how the response phase is controlled will determine your success in implementing the preparedness plan and the type of results you will achieve.

## Activating the EOC

The first task in any emergency is to survey the situation to determine if the size or severity of the disaster warrants the establishment of an operational EOC. A Federally funded EOC has a permanent staff for daily operations. In other cases, unless the EOC is in a shared position with an existing government agency, such as the communications center of the fire department, it may not be staffed on a regular basis. Staffing the EOC could involve moving people out of their offices and down the hall to the operations center or bringing in people from all over town or the State. There are four classifications that help to determine the EOC operational status.

Minor Emergencies	Minor emergencies are handled on a daily basis by local police and fire departments. Under certain conditions, such as a snowstorm, other departments like public works may become involved. The EOC is not usually activated beyond routine staff levels for minor emergencies.
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Limited Emergencies	<p>A limited emergency requires a limited staff for the EOC. Only those functions of the EOC that are necessary to cope with the limited emergency are operational. This condition can also be defined as partial mobilization. Limited emergency situations fall into two major categories.</p> <p>The <b>first limited emergency situation</b> is an advance readiness for what may become a full emergency at a later time. For example, during a hurricane or tornado watch or warning, a plan may call for the activation of a limited staff at the EOC to monitor conditions.</p> <p>The <b>second limited emergency situation</b> is when a minor emergency goes beyond the conditions that can be handled by the daily operations of the local government. For example, suppose a tractor-load of anhydrous ammonia (commonly used as fertilizer) were to leak and threaten the feed of several thousand head of cattle. The plan may call for the activation of the EOC on a limited basis to help with the movement of cattle, help find a source of fencing and supply extra personnel. By doing so, emergency management would be protecting significant amounts of property, human food safety and animal well-being.</p>
Potential Disaster	<p>A potential disaster is one step beyond a limited emergency. In a potential disaster the limited staff should be supplemented so that the situation may be more closely monitored. During this stage, most of the communication links of the EOC are tested and made operational. For example, when a hurricane is several hundred miles offshore and the direction uncertain, the EOC may be in the limited emergency stage. If there is a warning issued, the potential disaster stage is reached.</p>

Full Emergency	A full emergency requires complete mobilization of the emergency operations staff. In the hurricane example, by the time winds are felt in your community, the EOC should be fully staffed and on full emergency status.
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## Controlling access to the EOC

In order to carry out an effective response to an emergency or disaster, you must be able to run the EOC with minimal interference from those who are not part of the emergency management effort. This often involves controlled access to the EOC. As soon as the EOC goes into emergency status, some type of check-in procedure should be established. The EOC should have a receptionist or guard and each member of the EOC staff should be provided with identification.

The importance of emergency management officials and animal-care representatives meeting before a disaster occurs should be clear. If mutual understanding and exchanges take place before a disaster, it will be possible for emergency management officials to allow access of animal-care officials to the EOC.

## Communicating to the outside

### The media

Animal issues will be a popular topic for the media. Members of the media should be referred to the PIO for all comments.

### The public

Communications are essential to meet the information needs of the public and these issues should be addressed through formal planning. During a disaster emergency management is often bombarded with phone calls from people requesting information and volunteering help. For this reason, and because local phone lines may be jammed, emergency management often has designated phone lines and separate frequencies for communicating among themselves in a disaster. More reliable means such as satellite telephones are becoming more economically available.

Planning for the worst-case scenario by collaborating with radio operators and local Radio Amateur Civil Emergency Service (RACES)

groups may allow communication when more common communications tools are not functional. Animal owners can also communicate information among themselves. For example, telephone or visiting trees, when one person phones or visits two others, who in turn each phone or check two others, etc., can facilitate sharing information and resources. Veterinarians, humane shelters, breed associations, and horse clubs should establish such communication networks ahead of time.

In the past, many efforts to effectively deal with animal-related issues in disasters have been stifled by the lack of communication between emergency management and local animal-care providers. The problems could lead to public resentment and loss of trust in emergency management. This can be avoided if emergency managers and representatives from the animal-care community collaborate before and during disasters.

Public information is conveyed through the PIO whose main responsibility is to update the media. The PIO should also be familiar with the local, State and Federal plans and how they interconnect. When planning for animal issues has taken place before a disaster occurs, communications can help alleviate animal-related problems. Good communication on the care of animals and their owners will also enhance the overall performance and perceived efficiency of the response operation.

## Animal care issues

### Evacuations

One of the greatest concerns and most controversial issues in emergency management is the evacuation of people with animals. Two views on this issue are explained to follow.

- ▶ Rapid evacuation is intended to provide maximum safety for people. Animals are seen as a hindrance to this.
- ▶ Many people view their animals as family members or as a source of livelihood and expect them to be cared for by emergency management officials. Most evidence indicates that people who evacuate without their animals later create more problems than those who evacuate with them. Owners should be advised to evacuate with their animals if it does not create a

substantial safety risk.

Some basic assumptions should be reiterated at this point so that emergency managers and owners understand each other's respective responsibilities in dealing with animals in disasters. The ultimate responsibility for any animal lies with its owner. A responsible owner prearranges boarding and ensures that their animals receive appropriate food, water, housing, and veterinary care in a disaster.

Ideally, the responsibility of animal ownership should be understood and publicized as part of a formal plan before the disaster. Past experience suggests that outreach concerning animal-ownership responsibilities should focus on pet owners, who are more likely to be unaware of their role.

The primary reason that emergency management officials help facilitate the care of animals is to enhance the care of people. Further, in the case of livestock producers, veterinary practices, humane shelters, boarding and grooming kennels and breeders, emergency management can help minimize business losses. Providing emergency management expertise and resources for the animal-care providers is a vital support function for community and commerce infrastructure.

Emergency management can facilitate the care of animal owners and their animals in disasters through the coordination of the resources and expertise of emergency management and the animal-care providers. Veterinarians, animal control and humane shelter directors, county extension educators and local evacuation teams are examples of resources with whom to coordinate the care of animals.

## Capture and rescue

The decision to evacuate is influenced by the following.

- Nature of the incident,
- The expected length of resident displacement,
- The magnitude of the threat,
- Time of year, and
- Communications available.

Some general principles should be considered when dealing with animals in evacuations.

- ▶ All attempts to capture animals are potentially dangerous. Persons should never place themselves in danger to capture or rescue an animal.
    - ▶ Dogs, cats, horses, pigs, llamas, raccoons and birds bite or snap.
    - ▶ Cats scratch and bite.
  - ▶ Cattle, horses, and other large herbivores kick and strike.
  - ▶ Llamas, sheep, goats and other herbivores charge and butt.
  - ▶ Some large animals are dangerous by their sheer weight and clumsiness in unfamiliar environments.
  - ▶ Nobody should be allowed to work with an animal or species with which they are not very familiar.
  - ▶ The credentials of all personnel who intend to work with animals in disasters should be predetermined, because in a disaster many volunteers will emerge, and it will be impossible to tell who is qualified.

## Species differences

The conditions for evacuating vary for the type of species involved.

Dogs	May be the easiest to evacuate.
Cats	Older cats can be impossible to catch without a net and many cats do not travel well.
Fish and exotic animal collections	Require special considerations before moving – such as sources of electricity and suitable water quality.
Large numbers (hundreds) of cattle	Can be moved from a farm within 24 hours if the transportation is coordinated. This may be possible with the help from the transportation department or through a trucker's network.
Horses	Some horse owners do not have adequate transport facilities. Horses do not travel well if not confined to individual spaces in a trailer.



Finally, there are many differences in the way that animals have to be moved. For example, dogs and horses can be lead, but livestock has to be driven. In a disaster, only people who know how to deal with the affected species should address these issues.

### Shelter policies

Some localities accept animals into their shelters, but American Red Cross policy states that only seeing eye and hearing dogs will be accepted in its shelters. The reasons for this policy are important to understand because they apply in a general way to issues that must be considered when evacuating animals. The reasons that some shelters will not accept animals are as follows.

Public health regulations	State public health regulations may prohibit animals in public facilities, such as malls, restaurants, churches, schools, etc., with the exception of animals that assist persons with disabilities, i.e., seeing eye dogs and hearing dogs. Disaster shelters are required to operate in accordance with the existing public health regulations of the locality in which they provide services.
Ownership of buildings used as shelters	The occupants do not usually own buildings where shelters operate during a disaster, so the user must abide by the wishes of the building owner.
Well-being of shelter residents	Concerns include injuries, anxiety, and lack of privacy suffered by shelter residents from pets that may bite or cause allergic reactions, phobias and noise.
Liability	There is potential for personal injury and property damage claims arising from animals biting, scratching or chewing; fighting and playing among themselves; and urinating in inappropriate places.

## Public health issues surrounding animals in disasters

Historically, the greatest concern regarding animals in disasters has been public health. Particular public health concerns include the following.

- ▶ Contamination of the food and water supply,
- ▶ Limited food supply, and
- ▶ Zoonotic disease transmission and dog bites. Zoonotic diseases are diseases that are transmittable between animals and humans. Examples of organisms that cause zoonoses include salmonella, Cryptosporidium, Campylobacter, and Giardia.

## Contaminated food supply

An example of potential food contamination occurred after the 1986 Chernobyl reactor incident. Clouds of radioactive material caused international concern about radioactive contamination of cows, sheep and other food-producing herbivores. Significant public health concerns stemmed from studies on the level of radionucleotide contamination in food including meat, milk, and eggs. Scientific monitoring was necessary to prevent the contamination of animals and their products from entering the human food chain.

More commonly, hazardous materials are released in disasters. Especially on farms, there may be large amounts of fertilizers, herbicides, pesticides and fuels that are spilled in disasters. These hazardous materials can be spread over pastures, contaminate animal feed, or directly contact the animal; thus potentially contaminating animal-based food products. They also represent significant animal welfare concerns. The agency that deals with the inspection of livestock and poultry as food for humans is the U.S. Department of Agriculture Food Safety and Inspection Service. The Food and Drug Administration (FDA) inspects milk products, seafood and non-animal products.

## Zoonoses

Zoonotic diseases are transferred between animals and people. Incidences of zoonoses following disasters have not been a documented problem in the United States since the 1950s. The spread of zoonoses is controlled through our public health and food inspection service. Nevertheless, more common zoonotic diseases and the means by which these can affect humans warrants concern. In particular, pets can be infected and expose children to zoonotic diseases.

Some organisms that cause zoonotic diseases are listed below. Humans are most likely to be exposed to zoonotic diseases when animal waste contaminates the drinking water supply. This can occur in floods and after power failure at water treatment plants. Water can also become contaminated when hazardous materials are blown or washed into supplies or when animal manure or dead animals contaminate wells and reservoirs.

Common organisms that cause zoonotic diseases include the following.

- ▲ Coliform bacteria (diarrhea)
- ▲ Salmonella (diarrhea)
- ▲ Campylobacter (diarrhea)
- ▲ Cryptosporidium (diarrhea)
- ▲ Giardia (diarrhea)
- ▲ Ringworm (skin infection)
- ▲ Rabies
- ▲ Vector borne diseases (e.g. Equine Encephalitis)
- ▲ Clostridium perfringens (diarrhea)
- ▲ Clostridium botulinum (weakness and collapse)
- ▲ Anthrax

This list is not complete. Consult a veterinarian or a public health official for further explanations.

The State health department is the appropriate agency to consult on issues of zoonotic disease. The State health department may call the Centers for Disease Control and Prevention (CDC) for support.

## Dog bites

Most dogs in the United States are pets and are not a threat to public safety. However, the chances of being bitten by a dog increases with certain factors. People who have no professional animal-handling experience may put their safety at risk by:

- ▲ Surprising or cornering a dog,
- ▲ Handling an injured or ill animal, or
- ▲ Intervening in dog fights.



The risks of dog bites relates to the natural territorial behavior of dogs. For example, dogs may want to protect where they live and become aggressive toward unfamiliar persons who approach the dog's territory. After disasters, search and rescue personnel may encounter this situation and should use extreme caution. Although it is often rumored that dogs congregate in packs and become a public nuisance after disasters, few such instances are confirmed. Animals that by nature are gregarious do not automatically become aggressive.

## Prevention of dog bites

When disaster responders are faced with a dog that interferes with their work, the best solution is to locate the owner or another animal-care provider who knows how to deal with dogs. Animal control personnel and humane groups should be at disaster sites and can help in this situation. If a dog creates a persistent nuisance and the owner cannot be identified, animal control officers should be contacted to capture the dog.

A dog's attitude may be indicated by obvious signs of aggression, such as bearing teeth and growling, or by signs of friendliness, such as tail wagging with upright ears. However, there are many subtle variations on these signs that may be confused by persons who do not routinely deal with dogs. It is safer for inexperienced disaster personnel to refer dogs to others who are familiar and comfortable with handling them.

If a dog attacks you, use the following tactics to reduce the risk of being bitten.

- ▶ It is best to stand still. Running incites hunting and chasing instincts in the dog.
- ▶ Loudly and firmly shout sit or down. This is often enough to exert dominance over a dog.
- ▶ Put something (e.g., a trash can lid) between you and the dog, or the pick up something and pretend to throw it at the dog, this is often sufficient stimulus for a dog to leave.
- ▶ If you are thrown on the ground, protect your head.
- ▶ Animal control officers should be contacted and informed of the stray dog.

Disaster workers that have been bitten by a dog should seek medical advice as soon as possible. If exposure to rabies is a possibility, post-exposure prophylaxis for rabies should be initiated. Rabies pre-exposure prophylaxis is recommended for disaster personnel.

Persons who are immune compromised should pay special attention if they are bitten by animals, because infections can be more severe in these people. Conditions that may cause immune suppression include chemotherapy treatment, diabetes, HIV infection and removal of the spleen.

## Mental health

Mental health is a component of public health that is concerned with the psychological impact of disasters on people. There are several thousand publications addressing the psychology of human disaster victims. People that are separated from their animals may experience the following:

- ▶ Re-entry attempts,
- ▶ Evacuation failures,
- ▶ Separation anxiety,
- ▶ Grief,
- ▶ Bereavement,
- ▶ Anger,
- ▶ Guilt,
- ▶ Psychosomatic symptoms, and
- ▶ Make irrational decisions about their own health.

Keeping animals and their owners together is a way of reducing stress on disaster victims.

Dealing with separated owners and their animals can become predominate issues in large-scale evacuations. Members of the public seeking to be reunited with their pets became a major issue after a train derailment in Wisconsin early in 1996. There was a threat of a large propane explosion and the entire town was evacuated in great haste. Many owners left their pets behind. After a few days the owners became concerned with the safety and well-being of their pets. Several owners risked their lives by entering the secured area at night to rescue their pets. To prevent this from happening, a large-scale pet rescue was

organized. This included the use of armored vehicles and safety equipment for the public. If pet owners had been advised to evacuate with their pets, many of these difficulties may have been avoided.

There is evidence in the literature to suggest that similar issues have arisen several times in disasters. These are real problems that emergency management officials have to deal with. It is no longer a question of whether this behavior is appropriate or not. It is simply a matter of how best to handle it. Close cooperation with the animal-care community is the best way to plan and respond to these issues. Even in the absence of a formal disaster preparedness plan, local veterinarians and animal control or humane shelter directors can be asked to coordinate evacuations and rescues of animals in ways that are compatible with the procedures of the ICS.

## Environmental concerns

Animals may escape or be killed in disasters. There is potential for decaying carcasses to impact the environment. Carcasses create biologic waste and attract flies and rodents, which can spread disease. There is also potential for groundwater contamination and bad odors. Escaped animals may wander onto land where they may contaminate water supplies, cause a build-up of manure, overgraze sensitive ecosystems and cause damage to crops.

## Carcass disposal

Animal carcasses should be disposed of as soon as possible to avoid creating a health hazard to animals or humans. A small number of animals will not create a major problem if they can be disposed of by a rendering company. However, the disposal of a large number of animals – e.g., several million chickens or several hundred cattle – requires advance planning. Certain governmental agencies may restrict disposal methods. Local ordinances should be reviewed and State and Federal health, agricultural, and environmental departments should be contacted prior to carcass disposal. It may be necessary to obtain waivers.

There are five common methods of animal disposal. These include:

- Rendering,
- Burning (cremation or incineration),
- Burial,
- Composting, and
- Fermentation.

The method used depends on the disaster, location of the bodies, type and number of animals killed, and local ordinances. Regardless of the method used, carcass disposal should be given top priority. If community services are not interrupted, the usual methods for disposal of animals that die naturally can be used. If community services are disrupted, special arrangements will need to be made to accommodate the method chosen.

Rendering	The easiest way to dispose of carcasses, especially those of farm animals. Rendering is a process whereby the carcass is cooked at high temperatures and converted into animal feed or fertilizer. Commercial companies perform this service and may, for a fee, pick up the animals. This method can be used if normal transportation methods and utilities are functional and the rendering company has sufficient trucks and personnel to handle the volume.
Burning	Can be done outside or by using commercial incinerators. Many animal hospitals, humane societies, and diagnostic laboratories have incinerators given that prior agreements are in place. When burning carcasses outside, it is important to let appropriate governmental officials know ahead of time to assure that no ordinances or laws are broken.



Burial	<p>Can be done only where local ordinances and the terrain permit. The location selected should be approved in advance by the appropriate environmental government agency. Burial may only be permitted at certain locations. Arrangements may also have to be made for heavy equipment to move animals and dig the graves. A good resource for these supplies is the State transportation department and National Guard.</p> <p>The U.S. Department of Agriculture Animal and Plant Health Inspection Service “Foot and Mouth Disease Emergency Disease Guidelines” and “Hog Cholera Emergency Disease Guidelines” can be consulted for procedures for preparing the outside burn site, burning and burial.</p>
Composting	<p>Used to dispose of large numbers of poultry carcasses. Composting is the mixing by volume of 1 part carcass to 2 parts litter and 1 part straw in alternate layers in a boxed, enclosed area. The method can also be used for larger animals. Whereas poultry can be placed whole in layers, larger animals need to be cut or ground into smaller parts first. The composting is accomplished by the bacteria in the litter and takes about two weeks to complete. The completed compost pile is odorless and can be used for fertilizer. Details of this procedure can be obtained from the University of Maryland Eastern Shore.</p>
Fermentation	<p>Carcasses are mixed with fermentable sugar in a metal container. Bacteria from the digestive tract of the carcasses ferment the material. The finished product can then be used for animal feed. Details of this procedure can also be obtained from the University of Maryland Eastern Shore.</p>

## Animal well-being

Any unfamiliar stress on an animal raises potential concern about the its well-being. Animal welfare can be compromised in disasters in the following ways.

- ▶ Being left without food and water in secured areas,
- ▶ Prolonged confinement in cages in animal shelters,
- ▶ Exposure to the environment,
- ▶ Lack of appropriate veterinary care,
- ▶ Lack of socialization, and
- ▶ The inability to express natural behavior patterns.

Some of these expectations may sound unreasonable in disasters, especially if the care of humans has not been fully addressed. However, decisions that imply or even deny the need for animal care may incite some members of the public and organized groups to openly criticize emergency management officials. This can lead to poor evaluation of the operation as a whole by the public.

There are some major differences in the laws concerning the well-being of different categories of animals, who owns them and how they are kept. For example, the care of research animals is regulated by USDA, and in some cases by the National Institutes of Health (NIH).

Preventing negative perceptions and the neglect of animal concerns is the major reason why emergency management officials and the animal-care community need to work together before and during disasters. People who work with animals daily understand animal well-being and can convey to others that animal concerns are being addressed in an appropriate manner. Likewise, emergency management officials can give animal-care providers information they need depending on the context of a disastrous situation. A disaster management partnership is the only way to address both sides of this issue.

The following organizations have specific roles in terms of responding to animal issues in disasters.

Agency/Center	Responsibility
State Department of Environmental Management	Deal with the impact on the environment.
Department of Natural Resources	Deal with threats to wildlife.
State Health Departments	Deal with water quality.
State Veterinarian or Department of Agriculture	Would become involved if there were a concern about animal welfare.



## LEARNING CHECK – WHAT HAVE YOU LEARNED ABOUT THE RESPONSE TO A DISASTER?

This activity is designed to assess your understanding of the information presented in this unit.

**Directions:** Answer the questions – use the Answer Key in Unit 9 to check your answers.

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### True or False

1. A critical incident requires extraordinary measures to protect lives.
2. OSHA requires that an ICS be used by all organizations that handle hazardous materials.
3. Span of control is the number of subordinates one supervisor can manage effectively.
4. In order to carry out an effective response to an emergency or disaster, access to the Emergency Operations Center should be controlled.
5. Emergency management can help minimize the business losses caused by disasters for livestock producers, veterinary practices, and humane shelters.
6. Zoonotic diseases are transferable from animals to humans.
7. In disasters, dogs often become a serious threat to public safety.

### Multiple Choice

8. Which of the following is **NOT** a factor affecting the method used to dispose of animal carcasses?
  - a. Type of disaster
  - b. Location of the bodies
  - c. Number of animals killed
  - d. Concern over animal welfare
9. Which of the following is **NOT** a classification that helps determine the EOC operational status?
  - a. Minor emergency
  - b. Full emergency
  - c. Critical incident
  - d. Potential disaster
10. One way to improve animal welfare in disasters includes which of the following?
  - a. Leave animals without food and water
  - b. Effectively address concern for animals in emergency operations plans
  - c. Do not provide appropriate veterinary care
  - d. Do not allow animals to express natural behavior patterns

## Summary

This unit dealt with issues related to the response to disasters. The organizational structure, command, operations, logistics and plans for the Incident Command System and the use and activation of the Emergency Operations Center were covered. Communicating to the media and the public through public information officers and liaison officers was also addressed. Finally, in terms of animals in disasters, public health and environmental issues were discussed.